

Technology Transfer

Area of Technology: Mechanical Engineering

Title of the Innovation: ELECTROCHEMICAL SYNTHESIS OF GRAPHENE OXIDE (GO)/ REDUCED GRAPHENE OXIDE (RGO) BY USING EXTERNALLY APPLIED MAGNETIC FIELD

Brief About Innovation

Graphene, ideally, is a single-atom-thick sheet of sp²-bonded carbon atoms, arrayed in a hexagonal lattice. The substantial π -electron conjugation in graphene results in fascinating electronic, thermal, magnetic, optical, mechanical, and chemical properties. The most widely used derivative of graphene, graphene oxide (GO), is a chemically modified graphene material with abundant O containing functionalities on its basal planes and edges, typically having lower C/O atomic ratios. Reduced GO (rGO) is obtained by the extensive reduction of GO using different methods, yielding a significantly lower Oxygen content compared to GO. While the intrinsic properties of graphene have been studied using micromechanical exfoliated samples, practical applications require scalable and cost-effective methods to provide structurally controlled graphene materials.

Salient Features:

- The present invention relates to a method of synthesis of Graphene Oxide/ reduced Graphene oxide. More particularly, the present invention relates to electrochemically method for synthesis of Graphene Oxide/ reduced Graphene oxide in the presence of magnetic field and high entropy alloy.
- The primary object of the present invention is to propose an electrochemical method for the synthesis of Graphene Oxide (GO)/ Reduced Graphene Oxide (rGO).
- The present invention involves the presence of externally applied magnetic field and high entropy alloy as a cathode material.
- One embodiment of the proposed invention is to provide a method for the electrochemical synthesis of graphene oxide and / reduced graphene oxide in the presence of magnetic field and high entropy alloy as a cathode material, involving no secondary purifications.

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